The Occupational Outlook

A Current Supplement to the Occupational Outlook Handbook

Vol. 1 • No. 2
May 1957

ITED STATES DEPARTMENT OF LABOR
EAU OF LABOR STATISTICS
ooperation with
ERANS ADMINISTRATION

The Occupational Outlook

UNITED STATES DEPARTMENT OF LABOR

James P. Mitchell, Secretary

Bureau of Labor Statistics

Ewan Clague, Commissioner

This publication is issued to provide counselors with current information on employment trends and outlook, based primarily on the continuous research and statistical programs of the Bureau of Labor Statistics. It supplements and brings up to date information in the Occupational Outlook Handbook, and supersedes the Occupational Outlook Review, formerly prepared for the Veterans Administration by the Bureau of Labor Statistics. It is prepared with the advice and assistance of the

Bureau of Employment Security
Robert C. Goodwin, Director

Bureau of Apprenticeship and Training
W. C. Christensen, Director

Women's Bureau
Alice K. Leopold, Director

Bureau of Labor Standards
Paul E. Gurske, Director

of the

UNITED STATES DEPARTMENT OF LABOR

and in cooperation with the

VETERANS ADMINISTRATION
Harvey V. Higley, Administrator

The Occupational Outlook is for sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. Subscription price per year (4 issues) - $1.00 domestic, $1.25 foreign; per copy - 30 cents.

Use of funds for printing this publication approved by the Director of the Bureau of the Budget (October 10, 1956).

The Occupational Outlook

UNITED STATES DEPARTMENT OF LABOR · Bureau of Labor Statistics

CONTENTS

Recent employment trends ---------- 2

Background for work - A study of young people leaving school in Harrison County, West Virginia ---------- 6

Employment outlook in the atomic energy field ---------- 11

Employment outlook for automobile mechanics ---------- 20

Employment outlook in department store occupations ---------- 25

Employment outlook for geologists ---------- 32

Employment outlook for social workers ------- 37

Industries providing summer employment ----- 42

Cumulative subject index ---------- 44

Note: The first two issues of the Occupational Outlook have made available, for counseling during this school year, information on employment outlook in a few fields prior to its publication in the Handbook. Subsequent issues of this periodical will carry articles on fields not covered in the Handbook and on new developments bearing on vocational choice.

May 1957 Vol. 1 No. 2

Prepared under the supervision of Stella P. Manor in the Division of Manpower and Employment Statistics, Seymour L. Wolfbein, Chief. Authors are staff members of the Division unless otherwise noted.

Recent Employment Trends

Joseph S. Zeisel

Employment in nonagricultural industries has expanded considerably in recent years. Not all major industry groups, however, have shared in this rise. At one extreme, the contract construction and the finance, insurance, and real estate groups far outstripped the others in employment growth. At the other extreme, mining employment decreased, and employment in transportation and public utilities barely held its own.

Long-term trends in consumer demand and changes in productivity have markedly affected employment in some industries. Thus, the tremendous demand for homes and for commercial and industrial construction since World War II, has resulted in a sharp employment rise in construction and related industries. On the other hand, the shift from coal to other fuels in home heating and in industry, as well as productivity gains, resulted in a sharp reduction in mining employment. Short-term influences, however, notably those associated with the Korean conflict, have also been significant in determining employment levels.

A brief review of employment trends for the entire period since World War II provides a background for discussion of recent developments in employment. The past 10 years may be conveniently separated into 3 rather broad periods based on factors influencing levels of economic activity and employment as follows:

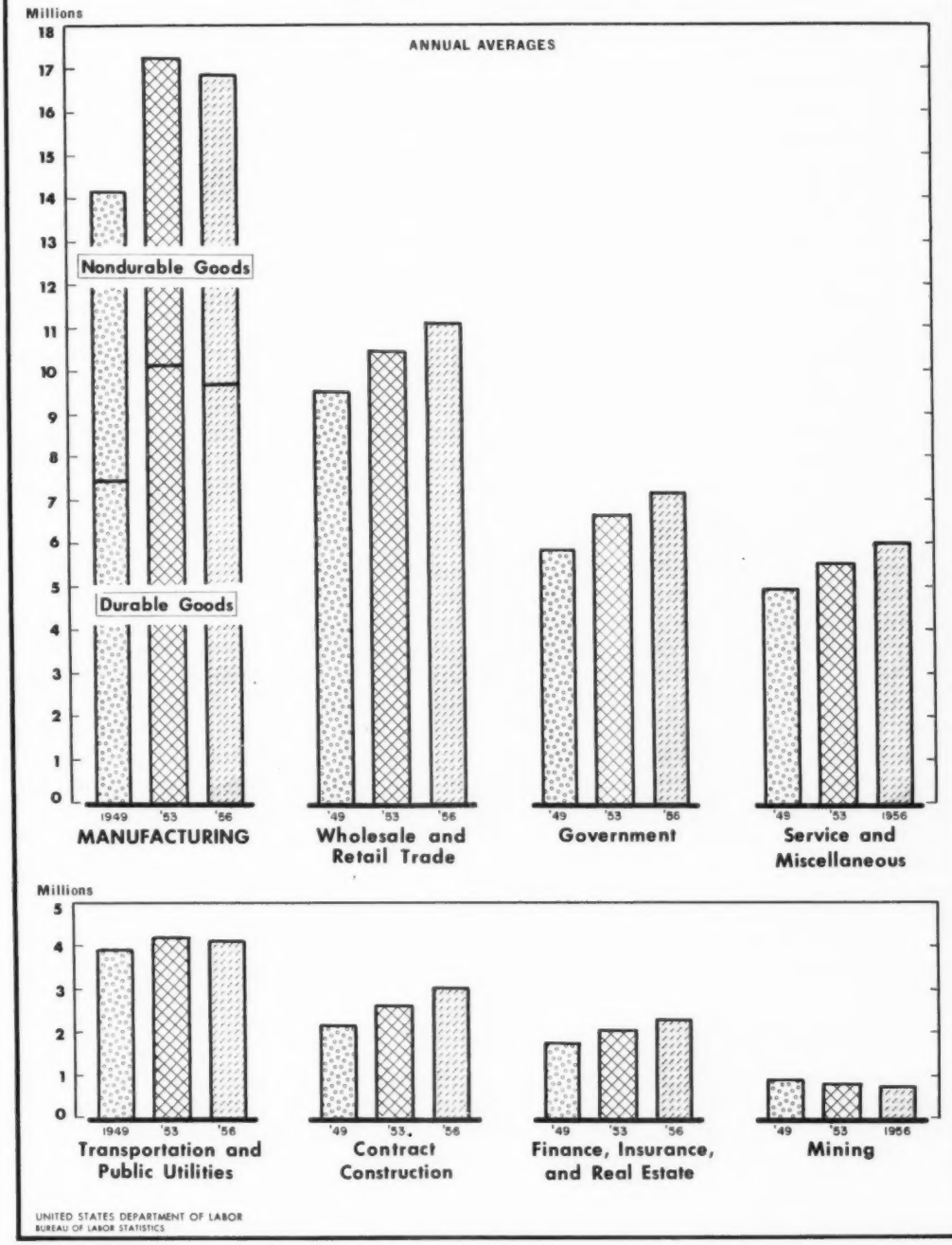
1. The years 1947 (the first truly "postwar" year) through 1949 marked a period of remarkably successful postwar adjustment of the economy. Employment rose sharply as producers expanded their facilities to meet the accumulated demands of consumers for products and services not available or in short supply during World War II. This period came to an end with a recession in the winter of 1949-50. By the spring of 1950, however, employment and output levels had recovered significantly.

2. The second broad period of economic activity since World War II is associated with partial mobilization after the beginning of Korean hostilities in 1950. This partial mobilization period--partial, since the Armed Forces were built up to only 3.6 million and civilian production was maintained, as nearly as possible, at peacetime levels--came to an end after mid-1953 when hostilities in Korea were terminated. A small dip in employment and output levels marked the end of this period.

3. From 1954 to 1956, high employment levels were generated at first by record levels of consumer demand (almost 8 million cars were produced and 1.3 million private nonfarm housing units were started in 1955), and later, in 1956, by a sharp increase in private investment in plant and equipment.

Employment by Industry Division

1949, 1953, and 1956



The beginning of the Korean defense effort in mid-1950 is taken as the starting point for the review of recent employment trends. The rapid increase in defense expenditures was the most important single factor affecting employment. Manufacturing industries directly associated with defense production expanded their employment rolls very rapidly. By 1953, when a post-World War II peak was reached in manufacturing employment, aircraft and ordnance--the industries most affected--had increased employment by 200 percent and 800 percent, respectively, from 1949 levels.

Manufacturing employment, as a whole, grew by about 3 million, or 22 percent, over this period to a level of 17.2 million in 1953. Virtually all of this gain took place in durable-goods manufacturing industries where annual average employment increased by 2.6 million, or 35 percent, between 1949 and 1953. In nondurable-goods producing industries, which were less directly associated with the defense effort, employment increased by less than half a million (6 percent).

Total nonagricultural employment rose by 6.4 million from 1949 to 1953, representing an increase of almost 15 percent. Next to manufacturing, contract construction showed the greatest increase in employment--21 percent--while employment in finance, insurance, and real estate increased 17 percent and total government employment rose 14 percent, with Federal Government employment up 22 percent. Of the industry divisions, only mining declined in employment.

The hiring of new workers is not the only means by which industry meets the demand for manpower. Employers also tend to use the workweek--by increasing or decreasing hours--to adjust to increased or decreased demands for labor. In reaction to increased demands for labor during the Korean conflict, the average workweek in manufacturing rose sharply in the early part of the Korean conflict, rising by an hour and a half from the 1949 average to 40.7 hours in 1951. In terms of man-hours, this was equal to adding almost half a million production workers. As with employment, the rise in hours was much more pronounced in durable-goods producing industries than in the nondurable-goods sector. In durable-goods industries, the average workweek expanded more than 2 hours from 1949 to 1951, while the increase in nondurable goods was only about one-third that amount--0.7 hours. The workweek in the aircraft and parts segment of the transportation equipment industry increased more than 3 hours from 1949 to 1951. Large gains also occurred in ordnance, primary and fabricated metals, machinery, and instruments--other industries closely associated with defense.

The Post-Korean Period

Following the peak of economic activity associated with the Korean hostilities, nonfarm employment has been growing at a much slower rate. From 1953 to 1956, total nonfarm employment increased by 1.8 million--an average of about 600 thousand a year. This compares with an average annual increase of 1.3 million from 1949 to 1953.

At their post-World War II peak in 1953, Federal Government national security expenditures made up 14 percent of gross national product. By 1956, although Federal security expenditures were still a significant factor in economic activity, they had declined to the point where they made up only 10 percent of gross national product.

Manufacturing employment, as a result of the decline in defense expenditures dropped by 1.2 million from 1953 to 1954, and by 1956 had not yet returned to the 1953 level. Employment in durable-goods industries, which had risen the most in the previous period, also bore the brunt of the decline, and in 1956 was still 300,000 below 1953 employment peaks. However, measured from 1954, the post-Korean low point in manufacturing employment, industries producing durable goods have gained much more rapidly than the nondurable-goods industries.

There has been a continuing relative weakness in employment in a number of nondurable-goods manufacturing industries during this entire period. Industries such as textiles, apparel, leather, and tobacco have failed to keep pace with the growth in the economy, both in terms of output and employment. This reflects a declining per capita demand for the products of these industries. However, some nondurable-goods industries, such as chemicals and petroleum and coal products, have maintained good rates of growth in output and employment.

In general, employment in nonmanufacturing industries has increased substantially since 1953. Employment in contract construction has continued to expand rapidly, as has employment in finance, services, and State and local government activities. Mining employment, however, has continued its long-term decline. Federal employment declined 4 percent from 1953 to 1956 and transportation and public utilities employment dropped about 2 percent.

The average workweek in manufacturing, adjusting to declining expenditures for military goods, dropped by 0.8 hours from 1953 to 1954. However, the workweek again rose sharply in 1955 (up 1 hour to 40.7) as consumer demand expanded and took up the slack created by the decline in Federal defense expenditures. The average workweek remained at about the same level (40.5 hours) in 1956.

Background for Work

A Study of Young People Leaving School in Harrison County, West Virginia

Naomi Riches

This article summarizes the first--or "background"--portion of a study of the adjustment of young people to the labor market in an area of persistent unemployment. 1/ The second and major part will present the actual work experience of a representative sample of the more than 3,000 "school leavers" studied. These school leavers consist of those who dropped out before completing high school and those who graduated from high school but did not go on to college. The Bureau of Labor Statistics has undertaken several such studies in different areas of the country as a part of its broad research program on problems of unemployment during periods of generally expanding economic activity. In these studies particular attention is being given to young people because they have special problems of adjustment to the labor market and because they experience higher unemployment rates than most other age groups.

From the school record data certain facts emerge that would seem to have significance for the adjustment of young people to the world of work:

(1) Almost three-fifths of those who dropped out of school before graduation had remained in school a year or more beyond the legal school-leaving age of 16.

(2) Disregarding the one-fourth who were recorded as having dropped out because they had reached the legal school-leaving age, the principal recorded reasons for dropping out were to go to work or to get married. Next in importance was to enter military service.

(3) Almost two-thirds of the dropouts left school at grade levels lower than normal for their age group.

1/ The survey, conducted by the Department of Labor's Bureau of Labor Statistics, covers the academic years from September 1951 to May 1955 and includes both private and parochial schools throughout Harrison County. The present article summarizes certain data from the school record cards of the 3,300 young people studied, i.e., their sex, age at leaving school, grade completed, their I.Q. as expressed by the Otis Mental Ability Test given usually in the 9th grade, reasons for leaving school, and the extent of their vocational training while in school. The second part of the study will analyze in detail the work experience of a 25-percent sample of this group through the summer of 1956. The Bureau is indebted to the schools and to Mr. Arthur Upton, county superintendent, for their cooperation in the survey.

(4) Graduates not going to college were completing vocational courses in much higher proportions than dropouts, of whom substantial numbers left school at grade levels below the point where other than elementary vocational courses were offered.

Since young people leaving school must make a new place for themselves in their community, play a new role, as it were, either as workers or homemakers, it is not enough to know something about them as a group of people. It is important also to know something of the economic characteristics of the area in which they live and what opportunities it offers for young workers. The population of Harrison County is approximately 85,000, a size that has varied little over the past 15 years. Its principal center is Clarksburg, a town of 32,000. Another 15,000 people live in 6 small towns of two or three thousand each. Thus the majority of people live in rural areas in a county whose agriculture tends toward subsistence farming, where coal mining has been steadily declining, and where industry is not extensive. Glass, clay, electrical equipment, and some undergarments are the chief manufactured products. There are, in addition, the usual distributive and service industries.

School statistics show that on the average Harrison County has graduated from its high schools about 800 students per year, while another 300 students have dropped out of school before graduation. Excluding the graduates who went on to college (about 32 percent annually), more than 800 young people each year presumably are either ready to enter the labor force or to assume some other adult responsibility. From the interview portion of the survey, however, it is already known that by the summer of 1956 almost half of the young people who had left school during the period under study had left the county. This figure includes, of course, those who were in military service at that time. The second phase of the study, by analyzing the work and unemployment experience of those who remained, is expected to throw some light on why such a high proportion of the young people left this area.

The sex distribution of school leavers affects the number of young people who can be expected to enter the labor market and indicates the kind of jobs needed to absorb the new young labor supply. In this community, more boys than girls drop out of school before graduation, but of those who do graduate, more boys go on to college. Among every 100 dropouts there were 56 boys and 44 girls, but among the graduates who did not enter college the proportions are almost exactly the opposite, namely 43 boys to 57 girls. Although this means that on the average there are about 400 boys and 450 girls who are potential additions to the county's labor force each year, the factor of outmigration still further changes this sex ratio. Of each 100 remaining in the county, 32 were boys and 68 were girls. Of those who left the county by July 1956, 61 in each 100 were boys and 39 were girls. Thus the county is not merely losing its young people; it is losing a disproportionate number of its young men. Some of these, of course, are in the military service and may return. However, the preponderance of boys migrating probably reflects the fact that it is more in accord with our social mores for a boy to leave home to look for work than for a girl to do so.

In making the transition from school to work, a person's age at leaving school becomes important. Thirty-four percent of those who dropped out before graduation left school at age 16. West Virginia's legal school-leaving age is 16, but under specified conditions, school attendance may be waived for younger persons. Nine percent dropped out before age 16. Fifty-seven percent of all those dropping out left school at ages 17 and over; 28 percent were 18 years or over. If progress through school is normal, graduation should occur in the 18th year as it did for 62 percent of the graduates not going to college. On this basis, nearly 30 percent of all dropouts were old enough to have graduated had their progress through school been normal.

The idea that numbers of students drop out of school at very early ages is not borne out, but they do leave at grade levels which are normal only for younger students. Of all those who dropped out at age 18, the age at which the average student graduates, the highest grade completed for 26 percent was the 11th; for 28 percent it was the 10th; for 27 percent it was the 9th; for 15 percent it was the 8th; and for 4 percent it was below the 8th grade. Thus even for the 18-year-old dropouts, only 54 percent completed a year or, at most, 2 years at the senior high school level. The remaining 46 percent of 18-year-old dropouts had completed work only at the junior high or at the elementary level. Of those who dropped out at age 17, only 35 percent had completed as much as a year, or at most two, at the senior high school level, and the highest grade completed by the remaining 65 percent was either at the junior high or the elementary school level.

Table 1.--Percent distribution by I.Q.'s of graduates not going to college and of dropouts

I. Q.	Percent distribution 1/	
	Graduates not going to college	Dropouts
Total	100	100
Under 75	1	6
75-84	13	29
85-89	16	19
90-94	20	16
95-99	17	13
100-104	14	7
105-109	10	6
110-114	5	2
115 and over	4	2

1/ Distribution does not include 11 percent of the 2,107 graduates and 33 percent of the 1,199 dropouts for whom no I.Q.'s were reported. In Harrison County schools, the Otis Mental Ability Test was ordinarily given annually in the 9th grade and was not repeated for those absent on the day of the test

Educators are not in entire agreement on a completely satisfactory measure of intelligence or about the relationship between I. Q.'s and dropping out of school. However, the scores made by the dropouts in Harrison County are definitely lower than those made by the graduates not going to college, and suggest one reason for the dropouts discontinuing their education. (See table 1.)

The above distribution indicates that 9 percent of the graduates not going to college and 4 percent of the dropouts had the ability to complete college if the I. Q. of 110 is taken as the point at which this can be done. Sixty-seven percent of the graduates had I. Q.'s below 100 and 83 percent of the dropouts. Fourteen percent of the graduates not going to college and 35 percent of the dropouts had I. Q.'s below 85. This is the point below which successful completion of most high school subjects is regarded by educational authorities as generally extremely difficult.

The school records give a reason for dropping out for 70 percent of all those leaving school before graduation. Although the stated reason may not be the real reason or may be only one of several reasons, nevertheless the reasons appearing on the school record cards are of some significance.

Table 2--Percent distribution of all reasons for dropping out as given on school record cards

Reasons	Number	Percent
Total	837	100
Reached age 16	209	1/ 25
Work	156	19
Marriage	156	19
Military service	123	15
Moved 2/	31	4
Adverse school experience	89	10
Adverse home circumstances	36	4
Health	37	4

1/ Actually 34 percent dropped out at age 16, but this was given as a reason in only 25 percent of the cases.

2/ The school records indicated that these students had "moved" and were transferring to another school in the county. However, they did not enroll in another school and therefore were genuine dropouts.

Although "adverse school experience" is reported as a reason for leaving in only 10 percent of the cases, it may well be in the background of other reasons--especially "reached age 16."

424203 O - 57 - 2

The secondary schools of Harrison County offer a wide range of vocational courses. The commercial courses are typing, shorthand, bookkeeping, and commercial law. The industrial courses range from the beginner's industrial arts and general shop to printing, machine shop, auto mechanics, and welding. Home economics courses are included in the industrial group. In addition, distributive education (training for retail trade) is open to seniors. The importance in the curriculum of these vocational courses is indicated by the fact that all but 10 of the 2,107 graduates not going to college had completed at least one vocational course. Ninety percent of those taking vocational courses had one or more commercial courses and 90 percent had taken one or more industrial courses. Forty percent of those who took commercial courses had completed four or more.

Comparatively few vocational courses were given prior to the tenth grade. The graduates not going to college were able to take advantage of the opportunities offered for vocational education but the dropouts, by leaving before they reached the grades where more vocational courses were offered, did not give themselves the chance to get the kind of practical training available. For example, 36 percent of all dropouts had completed no vocational courses of any kind. Of those who did complete some vocational courses, 43 percent had taken some commercial courses, but only 4 percent had completed 4 or more such courses. Although 92 percent had some industrial courses, 62 percent of these had completed only one course. Since more than half of the students with one industrial course were girls, it is probable that the course was home economics which would provide little salable skill for those entering the labor force.

The second part of this study will investigate, among other things, the question of correlation between school background and performance in the world of work.

National Stay-in-School Campaign, 1957

HANDBOOK FOR COMMUNITIES

How to organize a community for carrying on a program to induce young people to stay in school and graduate.

Sponsored by the U. S. Department of Labor, and the Office of Education of the U. S. Department of Health, Education, and Welfare, in cooperation with the Department of Defense.

Limited number of copies available from Bureau of Labor Standards, U.S. Department of Labor, Washington 25, D.C. or from the Office of Education, U.S. Department of Health, Education, and Welfare, Washington 25, D. C.

Employment Outlook in the Atomic Energy Field

Mannie Kupinsky

Atomic energy is a potential source of great power and a research tool of incalculable value. It has many applications in industry, medicine, and agriculture. The many activities related to the development and application of atomic energy have already made this an important field of employment opportunities.

According to a study of this field, made in connection with the revision of the Occupational Outlook Handbook, more than 150,000 workers were employed in a variety of atomic energy activities in mid-1956. These workers included many highly trained persons--scientists, engineers, technicians, and craftsmen. A large proportion of these workers were employed in research and development activities. Others were engaged in mining, manufacturing, and construction work. Health and safety are of primary concern in this field. As a result, extensive safeguards have been established to protect workers and an excellent safety record established. Moreover, only a small proportion of employees work in areas where direct radiation danger exists

Applications of Atomic Energy

The heat and radiation produced in reactors can be used in a number of ways. The major nonweapon uses appear to be the production of electricity; the propulsion of ships and submarines; the heating of buildings; as a research tool in medicine and agriculture; and as a means of product control in industry. Perhaps the greatest single nonweapon use of atomic energy will be to use heat from reactors for the production of electricity. Economic production of electricity from nuclear power plants had not been achieved by the end of 1956, but a vast multimillion dollar experimental and demonstration program was in progress to achieve this end.

Heat from reactors can be converted into propulsive power. Reactors already power submarines and will be used to propel surface ships. Intensive research toward developing a reactor to power aircraft is in progress and a reactor to drive locomotives is being studied.

Reactors can be built primarily as a radiation source. As such, they are used for many kinds of research and are being developed into versatile training and experimental facilities for use in nuclear research centers, universities, and laboratories. In addition, they are being given serious study as high intensity radiation sources to catalyze chemical reactions, process materials, and for other applications exploiting the unique properties of radiation.

Reactors are also utilized for the manufacture of radioisotopes which have extensive applications in medicine, industry, agriculture, and research generally. Radioisotopes give off radiation in the form of several types of rays. These rays can penetrate matter in varying degrees and are

used in three general ways. One is the irradiation of materials to change their properties--for example, the irradiation of potatoes and other food to prevent decay (or destroy infesting organisms), the irradiation of cancer tissues to destroy them, and the exposure of seeds to radiation to develop better strains. Radiation is also used for measurement. For example, the thickness of metal or the liquid level in a closed container can be determined through measuring by instrument the amount of radiation penetrating the substance. Industry uses this method in product control. Lastly, the rays from radioisotopes can be used as tracers. Radioisotopes can be placed in the blood stream of men and animals, for example, and their movements traced by instruments recording the emitted rays. Tracing is the most important use of radioisotopes and to date is used widely in medicine, agriculture, and industry.

Nature of the Atomic Energy Field

Many different activities are required for the production and application of nuclear energy. These include the mining and milling of ores, the refining of ore into metal, the manufacture of nuclear fuels (uranium U-235 and plutonium), the manufacture of reactors and components, the operation and maintenance of reactors, the application of radioisotopes and high intensity sources of radiation in numerous ways, and research of various kinds in industry and universities.

Many of the basic atomic energy activities are supported by the Federal Government. The Atomic Energy Commission directs the Federal Government's atomic energy program. The work program is contracted out to private organizations which operate Commission-owned facilities that were valued at more than $6 billion in 1956. These facilities include laboratories, uranium processing plants, nuclear reactors, and weapon manufacturing plants. It has been estimated that more than 75 percent of the Commission's expenditures are for development and production of military weapons.

The Commission owns many research and development centers that are operated by private organizations. Employment in these centers totaled about 30,000 late in 1956. Three of these centers--Oak Ridge (Oak Ridge, Tenn.), Argonne (Chicago, Ill.), and Brookhaven (Long Island, N. Y.) National Laboratories--carry on research in the physical and life sciences and in the reactor development field. They also build experimental reactors, particle accelerators, and other types of atomic energy equipment. Oak Ridge National Laboratory is a major producer and distributor of radioactive and stable isotopes.

The Commission contracts with private companies and research laboratories for additional research in geology, medicine, biology, metallurgy, reactor development, waste disposal, reactor component manufacture, etc. It also supports extensive basic scientific research in universities.

Of course, much independent research in atomic energy is carried on without financial assistance from the Commission. Furthermore, the Commission encourages private participation in the atomic energy field by

making available, to the fullest extent possible, scientific data on atomic energy, Government-owned facilities for running experiments, and equipment for scientific projects. It also provides financial help to private organizations for the construction and operation of research and power reactors, atom-smashing machines, and other atomic energy facilities, and makes available the necessary fuel.

Private concerns in their own installations are engaged in every type of atomic energy activity except development and production of military weapons and certain nuclear fuel processing operations. Many of these activities, such as ore mining and milling, refining of metals, manufacture of heat transfer equipment and instruments, and construction of facilities, differ little from nonatomic energy operations of the same sort. Other activities such as manufacture of the fuels needed to run reactors are unique to the atomic energy field.

Private concerns also produce many materials for use in atomic energy equipment. These materials, depending upon their function, must be able to stand heat, corrosion, or radiation, and must have special properties such as the ability to slow neutrons down or absorb them or be impervious to them. A number of companies are also engaged in the development and design of reactors. Reactor manufacturers may make the reactor core, which contains the nuclear fuel and other elements, as well as the control rods or other integral pieces of the reactor, but much of the work is subcontracted to companies specializing in the manufacture of such items as steel vessels, heat transfer equipment, pumps and valves, instruments and controls, and shielding materials. Another group of companies specializes in designing and engineering building facilities for nuclear reactors and their auxiliary equipment, atomic energy research laboratories, and nuclear fuel processing plants.

Atomic energy activities are found throughout the United States. These activities are in progress in every State through a university, a hospital, a manufacturer, a mine, or a Commission-owned installation.

Jobs in the Atomic Energy Field

A relatively high proportion of the 150,000 workers employed in the atomic energy field in mid-1956 were scientists, engineers, and technicians, as well as skilled craftsmen. This high proportion of technical and professional workers is a result of the large amount of research and development and pilot work now being conducted in this field. However, in some of the activities, such as mining, the occupational distribution is similar to that of comparable nonatomic work. The following is a brief description of the kinds of workers employed in some of the important atomic energy activities.

Uranium Refining

In uranium refining plants, the milled uranium is chemically processed to remove impurities and then converted to a metal or other chemical compound. More than 3,000 workers were employed by uranium refining plants in mid-1956.

Managerial, supervisory, and professional workers accounted for about 18 percent of all employees in uranium refining. Chemical engineers and chemists were employed in substantial numbers. Processing operations accounted for the largest proportion of employment. Chemical operators made up the largest individual processing occupation. Machine-tool operators who cut uranium metal to shape and skilled maintenance workers, such as pipefitters, instrument repairmen, electricians, and millwrights, were employed in fairly large numbers.

Enrichment of Uranium

Uranium enriched in varying degrees with U-235 atoms (the degree of enrichment is determined by reactor design) is produced in huge plants that separate the fissionable U-235 atoms from the nonfissionable U-238 atoms by the process known as gaseous diffusion. More than 10,000 workers were employed in mid-1956 in these plants.

Maintenance in these chemical plants accounted for 30 percent of employment. Important maintenance occupations were maintenance mechanics, instrument mechanics, electricians, pipefitters, millwrights, and rigger-ironworkers. Chemical operators in processing operations was the largest single occupation.

Chemical engineers and chemists comprised the largest occupations among professional employees. Substantial numbers of electrical and mechanical engineers, physicists, and mathematicians were also employed.

Reactor Manufacturing

A few thousand workers were employed by reactor manufacturers in mid-1956. Reactor manufacturers were engaged in research and development work on reactors and auxiliary equipment. They manufacture fuel elements, control rod mechanisms, pressure vessels, pumps and valves, and heat transfer equipment. Many of their production activities are very similar to those in machinery manufacturing.

Engineers made up about 19 percent of reactor manufacture and development employment in mid-1956. They included nuclear as well as other types of engineers. They were engaged in design and development of reactor cores and other integral parts of the reactor. Physicists, mathematicians, draftsmen, and laboratory technicians were also employed in sizable numbers. There were many skilled craftsmen employed in both experimental and production work. Of total reactor manufacturing employment, inspectors and testers accounted for 11 percent; other types of workers employed were machine-tool operators, machinists, and welders.

Reactor Operation and Maintenance

Many nuclear reactors were operating in late 1956 in Commission-owned facilities and nuclear powered submarines. Occupations typically needed for the operation of reactors include reactor operators (licensed by the Commission); reactor engineers; health physicists; and technicians. Among the

employees needed to maintain and repair reactors are instrument engineers, instrument technicians, electricians, plumbers, mechanics, and machinists.

Research and Development Centers

Research and development centers that are operated by private organizations for the Atomic Energy Commission employed about 30,000 workers in late 1956. These workers devoted most of their time to atomic energy research which involves the use of laboratory facilities, machine shops, welding and sheet metal shops, and reactor and atom-smashing machines (particle accelerators).

Engineers and scientists made up more than 27 percent of total employment in a typical center. Engineers alone accounted for nearly 12 percent; physicists, nearly 5 percent; and chemists, 4 percent. In the technicians and craftsmen group, research technicians comprised 11 percent of total employment, and machinists accounted for 4 percent.

Government Employment

The Atomic Energy Commission directs the Federal Government's atomic energy program. About 6,600 persons were employed in its national and field offices in late 1956. Included among the Commission's personnel are a relatively large proportion of engineers, geologists, chemists, and physicists. The Commission's work program is generally contracted out to private organizations.

In addition to employees of the Atomic Energy Commission, there are Government employees engaged in atomic energy work in other Federal agencies and in labor and health departments in a few individual States. Their duties involve research and application of atomic energy and preparation and implementation of radiation health and safety measures.

The United States Department of Defense employs engineers, as well as nuclear physicists, nuclear chemists, health physicists, geophysicists, and mathematicians in its atomic energy work. The United States Geological Survey employs mineralogists, geologists, chemists, physicists, and many other supporting employees. United States Department of Agriculture employees use radioisotopes extensively in research work. Included among these employees are physicists, chemists, entomologists, plant physiologists, and soil scientists.

The United States Department of Health, Education, and Welfare is concerned with radiation health hazards. With the cooperation of the Atomic Energy Commission, it aids States in establishing measures to meet this problem. The Department had engineers, physicists, chemists, and doctors engaged in this work in 1956. The Department of Labor is also interested in industrial safety problems in the atomic energy field.

Unique Atomic Energy Occupations

The preceding discussion dealt in broad terms with occupational employment in various atomic energy activities. Most of these occupations are found in other industrial activities. However, there are a few occupations which are relatively unique to the atomic energy field and for this reason are discussed more fully below.

Health Physics Occupations.--These occupations are concerned with the problem of radiation safety for workers in atomic energy installations and for people in the surrounding community. Health physicists protect individuals and property from the hazards of radiation by detecting the radiation and controlling exposures. They are professional workers with considerable responsibility and usually are assisted by junior health physicists, radiation analysts, health physics technicians, and monitors.

The excellent radiation safety record in the 10 years of Commission operation of the Nation's atomic energy program is a testament to the effectiveness of radiological protection techniques that the health physicists have developed.

Health physicists are responsible for planning and organizing various phases of an atomic energy facility's health program. They set up standards of inspection and establish procedures for eliminating radiological hazards. In some cases, they are employed on experimental and developmental projects involving radiological toxicity or the development of better detection devices, safety equipment, and procedures. They may also plan and supervise training programs in respect to radiation hazards. Other functions are to direct surveys on radiological hazards or radiochemical toxicology and to prepare reports.

Health physicists supervise the inspection of work areas and equipment where radiation hazards exist and investigate specific problems involving hazardous materials. In addition, they assist in the development of better methods and equipment for detection and control. Another duty involves the preparation of routine and special reports on radioactive materials.

Health physicists recommend procedures for protecting employees and prepare instructions for use by operational employees. Shipments of equipment and materials are inspected by health physicists to ensure compliance with Government standards and regulations. They also cooperate with plant doctors on the need for, and scheduling of, medical examinations. Finally, they may recommend procedures to be followed in using radiotoxicants in research and developmental processes.

Health physicists are employed at nuclear reactor sites and wherever sizable amounts of radioactive materials are on hand. Frequently, their jobs are located away from populated areas.

Health physics technicians.--These technicians normally work under the supervision of a health physicist. They process, read, and record data

from radiation monitoring film and perform other special microscopy studies. Some of their other duties include checking and servicing radiation instruments and checking clothing with special radiation counting equipment. In some cases, they may be engaged in experimental work.

Inspectors or monitors.--Health physics inspectors or monitors use special instruments in checking work areas, tools, and equipment for radiation and radioactive contamination. They determine whether an area is safe to work in or whether equipment is safe to use. Inspectors set safe working time limits for employees in hazardous areas in relation to radiation tolerances. They also check incoming and outgoing shipments of radioisotopes for radiation levels and contamination. Soil and water samples are taken in waste disposal areas and checked. Finally, inspectors make reports and give oral advice concerning radiation hazards. They work under the supervision of health physicists.

Decontamination technicians.--The primary function of decontamination technicians, sometimes called reclamation men, is to decontaminate people, equipment, plant areas, and materials exposed to radiation. They use radiation-detection instruments to locate the contamination and later to check the effectiveness of their decontamination measures.

Other health physics occupations.--In addition to the four principal health physics occupations described above, there are other job specialties. There are, for example, workers who transport and dispose of radioactive materials. Also, a group of operators who use equipment for treating waste water, sewage, and other materials to reduce the amount of radiation. They are assisted by helpers and laborers. A sizable group of workers is employed in decontaminating gloves and clothing before they are laundered. Radiation safety representatives promote radiation safety programs and supervise safety coverage in an assigned area. A few workers specialize in the maintenance and calibration of detection instruments.

Training and Other Qualifications

Security clearance is required for employees handling classified data or working on classified projects and for all Atomic Energy Commission employees. There are stricter performance requirements for some of the craft jobs in installing and maintaining equipment and machines involved in atomic radiation than in comparable jobs in other fields. Plumbers, pipefitters, machinists, boilermakers, electricians, and welders may be required to work to somewhat more exacting tolerances than those allowed in ordinary industrial work. This kind of precision is needed, for example, to ensure safety and health protection in constructing and maintaining atomic reactors and related equipment.

The Atomic Energy Commission supports an extensive educational program to assist in preparing trained scientists, engineers, technicians, and other workers for the growing atomic energy field. The Commission runs two reactor training schools, trains people at its contractor operated facilities, and offers special fellowships. The Commission also offers schools

424203 O - 57 - 3

financial assistance for the purchase of equipment and education aids to be used in atomic energy education and furnishes nuclear fuels and other special materials for such purposes.

The Commission's Oak Ridge School of Reactor Technology for training personnel in nuclear energy technology offers a 1-year program and enrolls students sponsored by American companies and Government agencies. The International School of Nuclear Science and Engineering accepts foreign nationals and students sponsored by American firms and offers a 34-week program in nuclear energy technology. The Oak Ridge Institute of Nuclear Studies, which is run by an association of 34 colleges under Commission contract, provides training in the safe and efficient use of radioisotopes. Between 1946 and the end of 1956, more than 2,000 persons had taken its 28-day training course.

Several of the Commission laboratories offer additional educational and training opportunities. Temporary employment in laboratories is available to faculty members and undergraduates and graduate students. Engineering undergraduates may combine work in laboratories with classroom work. Graduate students may do their thesis work at laboratories. The laboratories also give on-the-job training to personnel from industry, Government agencies, and the Armed Forces.

The Commission also offers fellowships in radiological (or health) physics, industrial hygiene, industrial medicine, and nuclear energy technology. Participants under these fellowships receive training in universities and in Commission laboratories.

The following is a discussion of training, education, and other qualifications for jobs which are unique in the field of atomic energy. A bachelor's degree in physics, chemistry, biology, or engineering and about 1 year of graduate work in health physics is preferred by organizations with job openings for health physicists. In some cases, related technical training and experience can be substituted for part of the academic requirement.

The Atomic Energy Commission in the 1956-57 scholastic year offered fellowships for graduate work in this field at 4 universities. The fellowships combine academic study at a university and practical training at installations of the Commission. The program is conducted at Vanderbilt University and Oak Ridge National Laboratory; the University of Rochester and Brookhaven National Laboratory; and the Universities of Washington and Kansas and the Hanford Works. By 1956, these universities had trained between 260 and 280 individuals. These schools graduate from 80 to 90 health physicists each year. In the training program, health physicists attend university lectures during the academic year and during the summer months at the AEC installations they perform actual work involving problems of monitoring (measurement of radiation level), instrument adjustment, shielding, and waste disposal associated with reactors, high voltage machines, X-ray facilities, metal-preparation and metal-recovery laboratories and plants.

Some of the other unique health physics occupations do not require college training. For example, a high school education and some experience in health physics work or equivalent special training or education is required for the job of the health physics technician. Familiarity with electronic instruments and laboratory techniques are essential requirements. Special training in health physics and a high school education are requisites for inspectors or monitors. These workers must be familiar with some of the characteristics of radiation, maximum permissible exposure values, and methods of calculating exposure times. They must also know how to use radiation detection instruments. High school graduates, after receiving some formal technical instruction and on-the-job training, can become decontamination technicians. They are regarded as fully qualified after 15 months' experience on the job.

Employment Outlook

Atomic energy is a relatively new field which promises long-range growth in employment. With the more widespread application of nuclear energy, there will be an increased need for trained professional and skilled personnel in a growing number of activities. At the present time most of the employment is in research and development.

Additional nuclear fuel processing activities will probably result in increasing employment in uranium milling, refining, and processing operations. Growth in reactor manufacturing employment is also expected particularly in plants which fabricate fuel elements and offer reprocessing services for fuel and waste disposal.

By 1956, a number of private electric utility companies had already contracted for reactors for nuclear power plants. In the 1960's, there should be a number of such plants in operation offering employment opportunities for reactor operating and maintenance personnel. Other sources of employment will be universities and industrial laboratories having reactors.

Employment expansion can also be expected in laboratories processing radioisotopes. Employment may substantially increase in plants manufacturing controls and radiation recording and detection instruments because of the general expansion in the atomic energy field.

Trained technical workers and skilled craftsmen will be required in considerable numbers in the late 1950's and the 1960's in nuclear energy activities. Particular need will exist for chemists, nuclear physicists, mathematicians, biologists, biochemists, nuclear and other types of engineers, and people in the health physics occupations. There will be an increased need for skilled workers such as welders, sheet-metal workers, machinists, pipefitters, and tool and die makers.

Employment Outlook for Automobile Mechanics

Howard V. Stambler

Automobile mechanics make up by far the largest repair occupation in the labor force. A study of this occupation, made in connection with the revision of the Occupational Outlook Handbook, disclosed that more than 700,000 automobile mechanics were employed in mid-1956 to repair and maintain the 65 million passenger cars, trucks, and buses operating on American roads.

These skilled workers maintain and repair mechanical, electrical, and body parts of passenger cars, trucks, and buses. In many areas, they may also service tractors and other gasoline-powered equipment. Automobile mechanics make inspections and tests to determine the causes of faulty operation, and repair or replace defective parts to restore the vehicle to operating condition. Typical repair jobs done by mechanics are tuning the engine, replacing piston rings, alining the front wheels, and adjusting or relining the brakes. On unusual repair jobs, they may be guided by shop manuals and other technical publications.

In making repairs, the mechanic uses wrenches, hammers, pliers, drills, screwdrivers, and many specialized tools and gages. In larger shops, mechanics also operate a number of large, expensive machines which enable them to analyze and repair certain types of defects more efficiently. Some of the more common examples of such equipment are wheel alinement machines, brake testers, engine analyzers, headlight aimers, and wheel balancers.

Auto mechanics in the smaller shops are usually general mechanics qualified to perform a variety of repair jobs. In large shops and in shops which specialize in a particular type of repair work, a great many mechanics are specialists, such as front and steering experts, automatic transmission servicemen, auto electricians, or body repairmen. Specialized repairmen in the larger shops usually have an all-round knowledge of automotive repair and are occasionally called upon to do other types of work. However, body and fender repairmen, who are often trained only in the shaping and finishing of sheet metal, are usually not required to do other work.

Mechanics usually work by themselves. In large shops, however, the mechanic may be assisted by a helper or apprentice. Before actually doing the work, mechanics in small shops may be required to prepare estimates of the cost of repairs, including materials and labor time. In larger shops, the foreman or service manager may prepare the cost estimate.

Where Employed

In 1956, more than three-fourths of the auto mechanics were employed in the service departments of new and used car dealers and in independent

auto repair shops, which include general repair establishments as well as shops which specialize in a particular type of repair work, such as battery and ignition repair, body and fender work, radiator service, brake repair, and wheel and axle adjustment. Gasoline service stations, most of which provide only minor repairs and adjustments, employed about 4 percent of the auto mechanics.

Nearly one-fifth of the mechanics were employed by organizations which do not sell repair services, but merely provide maintenance for their own vehicles. In this group are trucking companies and bus companies, each of which employed about 3 percent of the auto mechanics in 1955; Federal, State, and local governments which together employed about 5 percent; and manufacturers of motor vehicles, which employed another 3 percent to make final adjustments and repairs. Other organizations which operate and maintain large fleets of vehicles, such as taxicab firms, bakeries, and dairies, accounted for most of the remaining auto mechanics in this group.

Most auto mechanics work in shops employing from 1 to 5 mechanics. However, some of the largest repair shops employ more than 100 mechanics. Generally, dealers' service departments in large cities have larger staffs of mechanics than independent shops and shops in the smaller communities.

Because motor vehicles are used throughout the Nation, automobile mechanics are employed in every section of the country from the largest cities to the smallest towns. The greatest concentrations of mechanics are found in States with the highest motor-vehicle registrations. In 1956, about half of the motor vehicles were registered in 8 States: California, New York, Texas, Pennsylvania, Ohio, Illinois, Michigan, and New Jersey.

Training, Other Qualifications, and Advancement

Most auto mechanics learn the trade through on-the-job experience. Young men usually start as helpers, greasers, or car washers, and gradually acquire the necessary knowledge and skills by working with experienced mechanics. Although a man can perform the simpler types of repair work after a few months' training and experience, it generally takes him at least 3 or 4 years to become a qualified all-round mechanic. Additional training time is usually required for mechanics who wish to become specialists. However, body repairmen, who do not have to acquire a technical knowledge of automotive mechanisms, can learn their trade in as little as 2 or 3 years if they have a knack for handling metal.

One of the best ways for a young man to become an all-round auto mechanic is through an apprenticeship training program. The apprentice may also choose a specialized field of training from among the following: Automobile engine mechanic, truck mechanic, bus mechanic, tractor mechanic, motorcycle repairman, brake mechanic, wheel alinement mechanic, auto generator repairman, auto electric repairman, auto body repairman, truck body builder, auto radiator man, and auto upholsterer.

Most apprenticeship programs last 3 or 4 years, and include thorough and systematic instruction and experience in all phases of the work. Approximately 10,000 automobile mechanic apprentices were being trained in 1956 in programs registered with State apprenticeship agencies or with the U. S. Department of Labor's Bureau of Apprenticeship and Training. In addition, a considerable number of workers were being trained in programs not registered with apprenticeship agencies.

Experienced mechanics employed by automobile and truck dealers are sometimes sent to special centers for further training on new developments, such as power brakes, power steering, automatic transmissions, and other mechanical innovations.

For beginning jobs, employers prefer young high school graduates who have some understanding of automobile construction and operation and who like mechanical work. Courses in science and mathematics give a young man a better understanding of the principles of internal combustion engines, power transmission by shafts and gears, and electricity. Shop courses in auto repair which are offered by many high schools and vocational schools are valuable. Practical experience gained from working on automobiles as a hobby is also helpful to a young man who wishes to become a mechanic.

Most mechanics are required to have their own small handtools. A beginner is usually expected to have about $50 worth of tools. Experienced mechanics usually have over $500 invested in their tools, and a few men own tools valued as high as $2,000.

There are several advancement possibilities for capable and experienced automobile mechanics. A mechanic in a large shop may advance to supervisory positions, such as repair shop foreman, service salesman, or service manager. Many experienced mechanics ultimately open their own independent repair shops or service stations.

Employment Outlook

The expected increase in the number of automobiles, trucks, and buses operating on the Nation's highways during the late 1950's and the 1960's will bring about a demand for thousands of additional auto mechanics to service and repair these vehicles. The number of automobile mechanics is expected to grow faster than the labor force as a whole. A considerable number of job openings will also be created by deaths, retirements, and transfers of auto mechanics to other fields of work. In this large occupation, deaths and retirements alone will create, on the average, about 8,000 to 10,000 openings each year during the 1956-66 decade.

Since World War II, the number of motor vehicles in the United States has increased very rapidly. Passenger car registrations increased from 26 to 52 million in the 1945-55 decade, while bus and truck registrations grew from 5 to 10 million. Further increases in motor-vehicle registrations are expected in the years ahead. Expected increases in population and number of family units, consumer purchasing power, and 2-car

families will greatly increase the demand for motor vehicles in the late 1950's and the 1960's. In addition, the continuation of farm mechanization is expected to increase the number of tractors and other gasoline-powered farm equipment.

Employment of automobile mechanics over the next decade will depend not only on the number of motor vehicles, but also on the amount of repairs required per vehicle and the productivity of the average mechanic. Since World War II, automobile manufacturers have added many features which make new cars more comfortable and easier to operate. Automatic transmissions, power brakes, power steering, and other postwar innovations have also considerably increased the complexity and the maintenance requirements of the average car. On the other hand, mechanics have greatly increased their efficiency over this period. New servicing equipment which facilitates diagnosis and repair, greater emphasis on replacement rather than the repair of defective parts, better shop management, and better training of mechanics have all contributed to an increase in the mechanic's ability to make repairs. Although motor vehicles are expected to become more complex over the next decade, continuing technological developments will enable the average mechanic to service more automobiles, trucks, and buses. Therefore, employment of auto mechanics will grow at a slower rate than motor-vehicle registrations.

Another factor which might affect the employment of mechanics is the introduction of gas turbine engines to replace the present internal combustion engines. The widespread use of the gas turbine engine could reduce considerably the amount of engine repair work needed. However, such engines are not expected to be used in many vehicles in the next decade. In any event, the bulk of the automobiles in use will still be piston-engine cars for many years after the first gas turbine cars are sold.

Earnings and Working Conditions

Most journeymen auto mechanics earned from $2 to $3 an hour in mid-1956. Generally, earnings were highest in new car dealers' service departments and large independent shops. Mechanics in the large cities generally received higher wages than those in smaller communities. Earnings also varied among the different types of mechanics, with body repairmen earning more than either general automotive mechanics or automotive electricians.

Mechanics in repair shops are often paid a percentage of the labor charge for the repairs they make. Each repair job is assigned a fixed labor charge and the most highly skilled mechanics can earn considerably more than the average because they are able to make repairs in less time. This is especially true in body work, in which there are great differences in skill between the very best repairman and the average repairman. A few body repairmen in large cities earn more than $10,000 a year.

Mechanics employed by trucking, taxicab, and bus companies and by other establishments which service their own vehicles are usually paid on an hourly basis. A survey of these workers conducted by the Bureau of Labor

Statistics in 10 large cities showed hourly earnings in 1956 ranging from $1.81 in Memphis to $2.55 in the San Francisco-Oakland area.

Earnings of beginning mechanics ranged from $1 to $1.50 an hour in early 1956, varying with geographical location and the knowledge and training of the applicant. Apprentices are paid a percentage of the journeyman's rate. This percentage ranges from 40 to 55 percent of the skilled worker's rate in the apprentice's first 6 months of work to 85 to 90 percent in the last 6 months of the apprenticeship period.

The majority of auto mechanics in most areas work from 44 to 48 hours a week. The 40-hour week is common only in fleet maintenance shops and in a few large repair shops. A considerable number of mechanics work more than 48 hours a week. Long workweeks are especially common in the smaller communities.

Some auto mechanics are members of labor unions. Most union mechanics are employed in shops of the larger new car dealers and the maintenance shops of truck and bus companies. Repairmen are more highly organized on the West Coast, but there is some unionization in other parts of the country, particularly in large cities. Among the unions which organize automobile mechanics are the International Association of Mechanists; and the International Union, United Automobile, Aircraft & Agricultural Implement Workers of America.

Working conditions vary considerably among shops. Most of the larger repair shops are pleasant places in which to work, but some of the small shops have poor lighting, heating, and ventilation. There is some danger of injury to men working on vehicles supported on jacks or blocking if proper safety precautions are not taken. In most jobs, the mechanic handles greasy tools and parts, and it is often necessary for him to stand or lie in awkward or cramped positions for extended periods of time. Although mechanics usually work indoors, they may occasionally go outside the shop to make emergency repairs on cars that have broken down on the road.

OCCUPATIONAL INFORMATION FOR COUNSELORS:

An Annotated Bibliography

In addition to publications giving general occupational and industrial information for the use of counselors, the bibliography lists materials on specific occupations and industries, manpower studies and reports, career and employment planning, counseling and related techniques, and periodicals. Publications giving background information on apprenticeship; child-labor standards; and wages, hours, and related benefits are also included.

Limited number of copies available from Bureau of Labor Statistics, U.S Department of Labor, Washington 25, D. C.

Employment Outlook in Department Store Occupations

William Paschell

Department stores employ more workers than any other type of retail establishment except those engaged in selling food. Altogether, the country's 2,700 department stores employ more than 800,000 people, according to a report prepared for the 1957 edition of the Occupational Outlook Handbook. Salesmen and saleswomen represent about half of all department store workers However, these stores also need hundreds of other types of employees--for example, buyers, personnel workers, stenographers, porters, elevator operators, and deliverymen--to carry on their large and complicated businesses.

Department stores are distinguished from other retail stores by their large size and the enormous variety of their merchandise. In their many different departments, all located under the same roof, customers can buy apparel, furniture, homefurnishings, electrical appliances, toys, and countless other items. "Bargain basements" are generally considered another unique feature of many department stores.

These stores also offer customers a variety of services, including various forms of credit, free delivery of purchases, gift wrapping, and telephone and mail-order service. Many have facilities such as beauty parlors, watch and jewelry repair shops, restaurants, and, in some cases, even small post offices. Frequently, specialists are employed to advise customers on such matters as planning of parties, weddings, or home decorating.

The largest department stores are giant establishments with several thousand employees each. However, the business also includes stores with as few as 25 employees.

A growing proportion of department stores are members of chain organizations. Some belong to regional or national chains which may include 100 or more stores. In addition, a few mail-order companies operate large numbers of department stores. A growing number of department stores, including independently operated stores as well as members of chain organizations, operate branch store outlets in suburban areas.

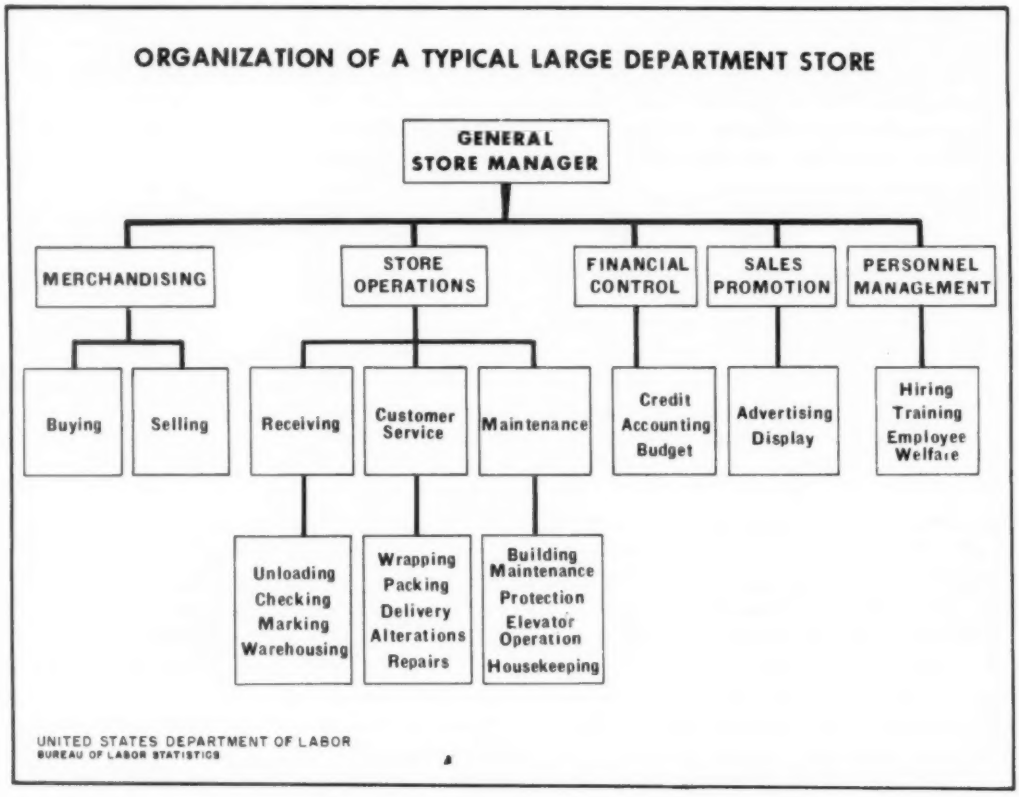
Department stores and their employees are concentrated in downtown areas of cities and, to an increasing extent, in the suburbs of large cities. Most of these stores are in the States with the largest population. However, some of the less populous States with expanding metropolitan areas also have substantial department store employment. Most major department stores--those with 500 or more employees--are in big cities: New York, Chicago, Los Angeles, Philadelphia, Detroit, Pittsburgh, Cleveland, St. Louis, Boston, and Washington, D.C. Most medium-size cities also have department stores. Though such stores are found frequently in the thousands of small cities and towns with less than 10,000 population, many of

these towns are located within commuting distance of department stores, which offer both shopping facilities and employment opportunities to their residents.

Department Store Occupations

Department store work includes five major functions--merchandising, store operations, financial control, sales promotion, and personnel management.

Merchandising--the buying and selling of goods--is the hub of all department store work, and the great majority of employees in merchandising work are directly engaged in selling. The proportion of salespersons tends to be somewhat lower in large than in small stores, since the larger stores have a greater number of specialized sales-supporting personnel to handle customer services and other activities needed to complete a sale. In stores with sales amounting to more than $50 million annually, approximately 45 percent of the workers were salespersons in 1955, compared with more than 60 percent in stores with annual sales of $1 to $2 million. Salespeople include not only regular, full-time employees but also many thousands who work part time regularly every week or for only a few weeks during the year. It has been estimated that about 20 percent of all department store sales personnel are employed on a part-time basis.



Personnel concerned with merchandising work also include an important group of executives--the buyers and their supervisors, the merchandise managers. These merchandising executives, who try to anticipate consumer preferences when buying goods, comprise a majority of all department store executives.

The largest group of workers behind the scenes in department stores is engaged in store operations. In this group are many thousands of employees who receive, check, and mark prices on merchandise to be sold, or wrap and deliver goods after they are purchased. Workers with special skills--fitters, seamstresses, tailors, upholsterers, carpet and linoleum layers, and various types of repairmen--make alterations and repairs on merchandise as part of the service given customers. In addition, since department stores are usually located in large buildings, some covering an entire city block, they need many skilled maintenance workers, such as carpenters, electricians, and plumbers. They also employ detectives and guards to prevent the theft of merchandise and otherwise protect store property; elevator operators; and porters, maids, and janitors to keep the store clean and perform other incidental duties.

Officeworkers comprised about 15 percent of all department store employees in 1950. Some of these clerical workers--file clerks, typists, stenographers, and secretaries--do office work in connection with sales promotion, personnel management, and other nonfiscal aspects of store management. However, the majority are employed in financial control work. Large numbers of bookkeepers, office-machine operators, and other officeworkers are needed to handle customers' charge accounts and to keep inventory control, accounting, and budget records. Especially large numbers of clerical workers are employed in big downtown stores which may handle recordkeeping and other office work for branch stores, as well as for their own operations.

A few store employees, mainly people with special creative ability, work on sales promotion. Advertising copywriters, layout men, commercial artists, and other specialists in advertising and publicity prepare material for publication in newspapers or for radio and television "commercials." They also plan promotional campaigns to bring more customers to their stores. Window trimmers and interior display specialists arrange displays of goods to attract customers.

Supervisors and executives represent approximately 10 percent of all department store employees. Their positions range from that of section or floor manager to such high-level administrative posts as general store manager, controller, and personnel manager. As mentioned before, the buyers and the people who supervise them are included in this executive group. Although the trend is toward hiring more young college graduates as trainees for executive positions, outstanding salespeople and other experienced employees will continue to have good opportunities for adavancement to top positions. Department stores also employ specialists and professional workers--personnel workers, accountants, lawyers, nurses, and doctors.

In most major divisions of department store work, women employees are in the majority. Furthermore, women have excellent opportunities for advancement in this business; they comprised approximately 40 percent of all salaried executives in department stores in 1955--a higher proportion than in most major industries. Although most of these women executives are in merchandising work, many are also employed in the controller's division, in sales promotion, and in personnel management.

Employment Outlook

Many thousands of job openings, especially for beginners, are expected in department stores each year, continuing into the 1960's. Many openings--probably more than 100,000 annually--will result from employee turnover, including resignations, deaths, and retirements. The greatest number of job opportunities will be for salespersons, the largest occupational group, but many clerical workers will also be needed. Sales and clerical jobs have the highest turnover rates, because the majority of workers in these jobs are women, many of whom leave to get married or take care of their families. Turnover is high also among beginners in many sales-supporting jobs, such as those of checker, marker, wrapper, receiving or shipping clerk, and deliveryman--since the experience acquired in these jobs in department stores qualifies young people for work in a variety of other businesses. Thus, many thousands of openings will be available for such positions. In addition, a continuing demand is anticipated for qualified young people to train for executive positions, including those of buyer and sales manager, particularly because of the establishment and growth of branch stores. Some openings will also be available for accountants, advertising and display artists, personnel workers, and other professional and specialized personnel.

Besides openings due to turnover, some job opportunities will arise during the next several years, as new branch stores are established in suburban areas. Many branch stores, most of them considerably smaller than the parent downtown stores, have already been opened in suburban shopping districts, and more such stores will be established as long as population continues shifting to areas around large cities. However, industry leaders anticipate continuation of the trend toward the building of large branch stores in giant "regional" shopping centers. In these centers, stores will be bigger, handle a wider assortment of merchandise, and create jobs for larger numbers of workers than most earlier established branch stores. Since relatively more salespeople are employed part time in branch than in parent stores, a comparatively high proportion of new openings will be in part-time work.

Employment is likely to remain fairly stable in downtown department stores while new branches become established and grow. Large staffs will still be needed in city stores, which are expected to continue to have a substantial sales volume even though branch stores will probably show greater proportionate increases in sales. Moreover, parent stores will perform a number of functions for branches, such as buying, advertising, accounting, and warehousing of merchandise.

In the department store business as a whole, future employment growth will probably be moderate compared with that which occurred in the 1940-50 decade, when employment rose by more than one-third. Most of the rise occurred immediately after World War II, as more goods and personnel became available. During the late 1940's and the first 6 years of the 1950 decade, department store employment was fairly stable, with an annual average of about 800,000 workers. Relatively small year-to-year fluctuations in employment occurred during this period, however, and are likely to continue.

The expected further growth in the population of the United States and rising income levels will play an important part in the anticipated long-run increase in department store employment. However, future levels of business and employment in these stores will also depend to a great extent on how effectively they meet the intense competition from other types of retail establishments. Undoubtedly, the total demand for merchandise will, if favorable economic conditions prevail, continue to grow rapidly. A greater population with more money to spend will purchase an ever-increasing amount of clothing, furniture, housefurnishings, radio and television sets, and other goods. But specialty stores of certain kinds have, in recent years, increased their share of retail sales. Between 1948 and 1954, when department store sales rose by 12 percent, there was a similar rise (14 percent) in apparel store sales but a much greater rise (30 percent) in sales of other specialty stores, such as those selling furniture and household appliances.

By 1956, many department stores were already making successful efforts to meet the mounting competition, and others are expected to follow suit. Neglected downtown shopping areas are being improved by store modernization programs; arrangements for customers' parking or transportation are being expanded; and local governments are being asked to cooperate by taking steps to ease congested traffic conditions. In addition, credit facilities are being further emphasized in order to stimulate purchases. Also, some stores have adopted methods used by their competitors; for example, a new suburban store, described as a combination supermarket, discount house, and bargain basement, is making great use of self-service methods and cutrate prices. Unique promotional campaigns, warehouse sales, and more night openings are further means by which department stores may try to increase their business.

The rise in department store sales expected as a result of these measures will probably not lead to an equally rapid rise in employment, for several reasons. Some officeworkers may be displaced by the introduction of improved office equipment--a change commonly referred to as automation. For example, electronic devices are being perfected which will record sales data from price tags in the form of machine punchcards, thus reducing the bookkeeping work involved in inventory control and in handling customers' accounts. Similarly, improved mechanical equipment for handling merchandise may affect employment in certain sales-supporting occupations, such as that of stockman and porter. If employers should make widespread use of self-service methods, growth in the employment of sales personnel would be limited. However, it is not expected that complete self-service will be greatly extended in department stores, since customers appear to prefer personal attention from salespeople.

Because of the many offsetting factors which will influence the demand for workers in department stores, the future rate of employment growth in this business is uncertain. However, some increase in the numbers of department store employees is expected, as already indicated, and there will no doubt continue to be many thousands of openings in these stores each year owing to turnover.

Furthermore, regular employees of department stores have a better chance of stable employment over a long period of time than workers in many other industries. If department store sales should slacken, employment could be reduced without laying off regular employees by reducing the number of part-time employees and by not filling vacancies.

Earnings and Working Conditions

Inexperienced salespersons generally earned from $30 to $40 a week in early 1956, although beginning salaries above $40 were paid in many large department stores. After the first few years, earnings of salespeople may rise by $5 to $10 or more a week. Salaries are generally increased with satisfactory performance in the same job or when the employee is transferred to a job requiring greater selling ability. Sometimes salespeople fail to progress because they do not remain long enough to qualify for better jobs (as is the case with many women) or because they do not have the selling aptitude needed for better paying sales positions. Although salaries may vary depending on the size of a store and its geographic location, the greatest differences in earnings of salespeople result from differences in the types of goods sold and the selling skills required. For example, salesclerks who sell merchandise, such as handerkerchiefs, notions, and small housewares, usually earn less than shoe salesmen, who may average more than $60 or $70 a week. The highest earnings--averaging $100 or more a week in some large cities--are usually received by men who sell furniture, major appliances, or floor coverings. Commission earnings--a percentage of sales--is a common method of payment in departments carrying the more expensive items. Often a specified minimum amount is guaranteed in order to cover slack selling periods. Salespersons in most other departments usually receive a fixed salary or a salary plus commissions. Part-time employees are usually paid on an hourly rate basis, but many also receive commissions on sales.

Average weekly earnings of department store employees below the supervisory level (salespersons, sales-supporting and other employees) were approximately $50 in mid-1956. However, this figure includes earnings of part-time workers who usually work not more than half the number of hours worked by full-time employees. Salaries in a number of sales-supporting jobs below the supervisory level compare favorably with and, in some cases, are higher than the earnings of salespeople.

Executive trainees, many of them college graduates who eventually become buyers, generally received salaries ranging from $50 to $80 a week in 1956. Salaries are usually higher in large than small stores, and in some stores men are paid more than women. A few stores pay above average entrance salaries to college graduates with advanced degrees. Full-

fledged buyers usually receive salaries plus commissions or annual bonuses based upon sales or profits in the department for which they purchase merchandise. A recent study showed that more than half of the executives in major department stores (many of them buyers) earned over $5,000 a year, and that more than 10 percent made over $10,000. In a few large stores in 1955, all buyers earned at least $7,000 a year, and the best paid earned from $20,000 to $40,000. Many top executives, such as general merchandise managers and vice presidents, have even higher earnings.

Most department store employees work a 5-day week of 40 hours or less, although the stores, as a rule, are open 6 days a week. They usually work on Saturdays, when sales volume is heavy. Before Christmas and in a few other peak seasons, longer hours may be scheduled; most stores give nonsupervisory employees additional pay or extra time off during slack seasons to make up for this overtime. Large department stores usually pay a higher than regular rate for hours beyond the normal work schedule. When employees work evenings (usually one evening each week) supper money is often provided. Buyers and other executives may have the same work schedule as other employees, or they may work 6 days a week. They frequently work 5 and 6 days on alternate weeks. However, they may receive longer vacations than nonsupervisory employees.

Department store employees and, in many cases, their direct dependents are usually allowed discounts of 10 to 20 percent or more on merchandise purchased in the store. Christmas and year-end bonuses for employees are also widely granted in department stores. Many large stores pay part or all of the cost for employee benefits such as life insurance, retirement plans, hospitalization, and surgical plans.

Generally, work in department stores is performed in clean, well-lighted, and often air-conditioned areas. However, some department store employees, including those in receiving, wrapping and packing, and delivery jobs, work in service buildings or warehouses or parts of the store where working conditions may be somewhat less desirable. Most department stores have employee lounges and the larger ones usually have employee cafeterias where food may be served at low prices.

A small proportion of department store workers, principally in large cities, are union members. The union with the largest membership among department store employees is the Retail Clerks International Association. Another organization in the field is the Retail, Wholesale and Department Store Union. Several unions organize workers in certain occupational groups. Among these are the International Brotherhood of Teamsters, Chauffeurs, Warehousemen and Helpers of America; the Building Service Employees International Union; and to a more limited extent, the Amalgamated Clothing Workers of America, and the International Ladies' Garment Workers' Union.

Employment Outlook for Geologists

Annie Lefkowitz

As the world's petroleum, mineral, and water resources diminish, it is becoming increasingly difficult to locate new sources of supplies. A study of geologists, made in connection with the revision of the Occupational Outlook Handbook, indicated that additional geologists with advanced training will be needed by industry to devise new techniques for exploring deeper within the earth's crust and to search underseas areas, as well as to do more extensive research and analysis of geological data.

Geology is the largest field of employment in the earth sciences. There were about 13,000 to 15,000 geologists in the United States in 1956, representing approximately half of all earth scientists in the country.

Geologists are concerned with the study of rocks on and under the earth's surface, and with earth history as disclosed by rock formations and fossils. They search for minerals and fuels and study the physical processes by which changes in the earth's structure and surface features take place.

Most geologists spend a large part of their time in field work, usually in exploring areas to determine the underground structure of the earth and the kinds of minerals or rocks that may be discovered there. Field work may involve studying rock cores and cuttings brought up by drills, examining fossil remains of animal and vegetable life, recording data in notebooks or on working maps and aerial photographs, and collecting geological specimens. Geologists also spend considerable time in the laboratory, examining geological specimens and doing research. A large number perform administrative functions and, to an increasing extent, geologists are advancing to

executive positions, especially in the petroleum and mining industries. In colleges and universities, geologists often combine teaching with research and administrative work.

Geologists usually specialize in some branch of the science. Economic geologists are concerned with finding and developing mineral resources. Petroleum geologists, who locate and exploit petroleum and natural gas deposits, are also economic geologists but are generally regarded as a separate category of specialists because they constitute the large majority of all geologists. Engineering geologists are concerned with the application of geological knowledge to the solution of engineering problems, as for example, locating desirable sites for such structures as dam foundations. Ground-water geologists deal with the sources, quantity, and quality of ground water available for agricultural, industrial, and domestic use. Paleontologists are concerned with the identification and classification of the fossils of animals and plants from past geological periods. Stratigraphers study the arrangement and relationships of rock layers and their chronological succession. Petrographers study rocks, their origin, and composition. Mineralogists are concerned with the physical and chemical properties of minerals and the ways of classifying them and of distinguishing them from each other. Geomorphologists are concerned with the form of the earth's surface and with the forces--such as erosion, glaciation, and sedimentation--which cause changes in the landscape. Structural geologists study the structure of rocks and the physical processes which produced their structure.

Where Employed

Most geologists in this country--probably about 3 out of every 4--work for private industry. The great majority of these are in the petroleum and natural gas industry, chiefly in Texas, Louisiana, California, and Oklahoma, although some are employed in nearly all other States and foreign countries. In addition, some geologists are employed by mining and construction companies, railroads, public utilities, and manufacturing concerns--especially in the metal, stone, and clay products industries. A number of geologists work for consulting firms or as independent consultants; their services are utilized mainly by private companies interested in exploration for, and extraction of, minerals and fuels.

The remaining geologists in the country--roughly one-fourth of the total number--include a few on the staffs of museums and nonprofit research institutions, with the rest divided about equally between college and university positions and Government employment. Those in colleges and universities teach not only in departments of geology but also in mining, metallurgical, and civil engineering, and in other departments. The large majority of geologists in Federal Government positions work for the Geological Survey of the Department of the Interior. Other Federal agencies employing geologists are the Bureau of Reclamation, the Bureau of Land Management, and the Bureau of Mines of the Department of the Interior, the Atomic Energy Commission, the Corps of Engineers of the Department of the Army, the Soil Conservation Service of the Department of Agriculture,

and the Federal Power Commission. State Government agencies also employ a number of geologists, many of whom work on State surveys conducted in cooperation with the Geological Survey. Most Government positions are located in continental United States, though some Federal jobs are in the Territories and possessions and in foreign countries.

Training and Other Qualifications

A bachelor's degree with a major in geology is usually considered the minimum entrance requirement for persons seeking careers as geologists, and graduate training is a prerequisite for an ever increasing number of jobs. Some scientists, however, have entered the profession with training in petroleum and geological engineering or in related sciences.

Training in geology is offered by a sizable number of colleges, universities, and institutes of technology. In 1955, bachelor's degrees in the science were awarded by about 190 institutions, master's degrees by about 85, and Ph. D.'s by about 35.

Educational institutions have varying course requirements for the bachelor's degree, although certain basic subjects in geology must be taken by students majoring in the science. In general, the work in geology amounts to about one-fourth of the total semester hours during the 4 years of undergraduate study; usually about another fourth of the work is in related natural sciences and in mathematics; and the remaining half is in general studies, such as English composition, economics, and foreign languages. Some colleges provide a special program of studies leading to a bachelor's degree in geology that allows as much as half of the undergraduate course work to be taken in the major field. In some schools of engineering that offer undergraduate programs in petroleum engineering and petroleum geology, as much as 90 percent of the work may be taken in the major field and related subjects.

For entry positions in private industry, the bachelor's degree is often adequate preparation, especially when the applicant's scientific training has been thorough and has included extensive laboratory and summer field work. However, at least 1 year of experience in the field is commonly regarded as necessary before a beginning geologist with a bachelor's degree is placed in a professional position; many of the larger oil companies have formal training programs to acquaint beginners with their operations. A number of new graduates with bachelor's degrees in geology are employed by Government agencies. Some Federal agencies also appoint promising undergraduates to summer jobs.

Postgraduate training is extremely helpful to geologists in competing for many professional positions. The Ph. D. degree is generally required for the more desirable college teaching positions and is also needed for many research posts.

The student who plans a career in geology should have an aptitude for science and mathematics. He should like outdoor activities and have

considerable physical stamina, since geological field work frequently necessitates camping out, often under primitive conditions. A desire to travel is important, in view of the frequency with which geologists are required to move from place to place in the course of their employment.

Employment Outlook

Employment opportunities for geologists with master's and doctor's degrees were very good in 1956. Well-trained geologists with bachelor's degrees also had good job prospects, especially in exploration work for the oil industry.

The outlook is for continued growth of the profession both in the near future and over the long run. It is anticipated that the petroleum industry will expand in this country, and that a moderate increase will occur in employment of geologists for exploration activities in the United States. It is also expected that major oil companies will further extend their search for new oil fields in foreign lands, providing increased employment opportunities abroad for American geologists. The demand for geologists in exploration for minerals--including uranium and other ores used in atomic fission--and water will also increase. As previously stated, the world's petroleum, mineral, and water resources are diminishing and it is becoming increasingly difficult to locate new sources of supplies. Thus, additional geologists with advanced training will be needed by industry to devise new techniques for exploring deeper within the earth's crust and to search underseas areas, as well as to do more extensive research and analysis of geological data. It is also expected that Government agencies will require larger staffs of geologists. For example, the Geological Survey, which has geologically mapped only part of the total area of the United States, will need more geologists for the large amount of work of this type that remains to be done. Furthermore, the number of students majoring in geology is expected to increase in the years ahead, along with college enrollments in general. There will, therefore, be a significant number of openings for teachers of the science.

Besides geologists required to fill new positions, some will be needed to replace those who die or retire. However, losses to the profession from deaths and retirements will not be numerous in the near future, since geologists are a relatively young group.

Along with the expected growth in demand for geologists, an increase in the number of geology graduates is anticipated. In 1955, 2,456 degrees in geology were conferred--1,795 bachelor's, 507 master's, and 154 doctor's degrees. The total number was far smaller than the peak figure of 3,649 degrees awarded in 1950, the year when most World War II veterans graduated. However, the figure for 1955 represented a significant increase above that for 1954, which was only 2,180 degrees. The number of degrees in geology will probably continue to rise moderately in the late 1950's and increase more rapidly in the 1960's, assuming that the proportion of college graduates majoring in geology remains the same as in recent years. Nevertheless, prospects for geology graduates with ability and thorough training

are expected to remain favorable through the early 1960's. On the other hand, new graduates with bachelor's degrees who have only minimal training may find it difficult to enter the profession, especially in view of the increasing amount of scientific knowledge required for geological activities. Such persons may be able to obtain only semiprofessional jobs in exploration activities and may find their opportunities for advancement severely limited.

Few women are currently employed as geologists. Their opportunities in field activities are and will continue to be limited, largely because of the rigorous nature of the work. However, some well-qualified women will be able to find positions as teachers in colleges and universities. Others, trained in certain specialties such as paleontology and petrography, will be able to obtain laboratory positions in industry and Government.

Earnings and Working Conditions

Recent information on earnings of geologists in private industry is limited to entrance salaries paid by several major oil companies. In 1956, these companies reported that monthly starting salaries for geologists with bachelor's degrees only were typically as follows: $425 for those without experience; $435 for those with some experience unrelated to geology; and $445 for those with some related experience. For geologists with master's degrees, typical salaries were reported to be as follows: $475 for those without experience; $485 for those with some unrelated experience, and $495 for those with some related experience. Geologists with Ph. D. degrees were reported to be earning $7,200 or more a year.

In the Federal Government service, the yearly starting salary for geologists with bachelor's degrees was $3,670 in 1956. Those with master's degrees could begin at $4,525; those with doctor's degrees, at $5,440. Many experienced geologists were receiving higher salaries. Those in supervisory and administrative positions were earning as much as $10,000 to $11,000 per year, and a few in high-level posts had even larger salaries.

Earnings of geologists are usually higher in private industry than in either Government agencies or educational institutions. Those in university positions, however, have the advantage of long summer vacations during which they can supplement their salaries by doing research, consulting, or other work. Extra allowances are generally paid geologists for work outside of continental United States.

Many geologists spend a great deal of time traveling, and may be away from home for extended periods of time. Their hours of work are uncertain, because their activities in the field are affected by weather conditions as well as by travel.

*Employment Outlook for Social Workers**

Agnes W. Mitchell
Women's Bureau

In 1956, there were an estimated 10,000 vacancies spread throughout the entire field of social work. Authorities in the field expect the shortage to last for 10 years or longer and to become increasingly severe.

Social workers help people to solve their family, health, financial, or other problems which jeopardize their welfare. They provide financial aid, advice, and assistance in such matters as finding a job, arranging for medical care, or securing low-cost housing. They seek to change the attitudes and behavior of individuals when necessary to aid them in caring for themselves more effectively and in improving their relationships with others.

Of the 80,000 or more social workers in the country (most of whom are case workers) about two-thirds are government employees, mainly in public assistance or other welfare programs administered by State, county, or city governments. The remainder are employed by voluntary agencies supported by contributions, endowments, or fees paid by those served. In proportion to the population, more social workers are employed in the North than in the South and more in the East than in the West. More work in urban than in rural areas. About 2 out of 3 are women.

Social Caseworkers Working with Families.--Most social caseworkers work directly with individuals and families who have difficulties such as those arising from poor relationships between husband and wife or between parent and child, poor household management, ill health, or lack of income. More than 36,000 caseworkers in public assistance or other government welfare programs arrange for financial aid for the blind, aged, disabled, and unemployed, and for children lacking one parent or both. Caseworkers may help people find jobs. They may also arrange for medical care or for the distribution of food and clothing to their clients.

Besides caseworkers in government agencies, over 5,000 family workers are employed by private agencies, for the most part to counsel troubled people. Only emergency financial aid is given by these private organizations as needy persons are referred to public assistance agencies. Among the larger of the private agencies in most cities are those affiliated nationally with the Family Service Association, Catholic Charities, Jewish Family Service, various Protestant churches, the Salvation Army, and the National Travelers' Aid.

* This article is based on research conducted by the Women's Bureau for the 1957 edition of the Occupational Outlook Handbook.

Child-Welfare Workers. --More than 14,000 social caseworkers in both government and private child-welfare agencies perform such services as placing neglected or mistreated children in foster homes, providing a temporary housekeeper in a home where the mother is in a hospital, counseling a youthful offender who has been brought before the juvenile court, aiding the unmarried mother and her child to find a satisfactory place in the community, or providing appliances for a crippled child.

School Social Workers. --More than 1,000 school social caseworkers are employed in at least 500 school systems on a full-time basis. Other school social workers have classroom duties and devote only part of their time to social work. A school social worker may visit the home of the child with poor attendance, give guidance to aggressive or excessively shy children, or seek the causes of poor progress in the case of an intelligent child. Most of these workers are employed in large school systems. Seven States have legislation which provides for these services on a local basis.

Medical Social Workers. --An estimated 6,000 social caseworkers work with doctors and nurses to aid patients when personal or emotional needs retard recovery. They are employed by public health departments in hospitals, clinics, and health centers. They may work on such programs as those concerned with polio, heart disease, cancer, tuberculosis, and rehabilitation. The medical social worker may, for instance, aid a child amputee to develop a more healthful attitude toward his handicap, work with an uncooperative patient shying away from surgery, or instruct a discharged patient's family on his diet and care. The medical social worker helps both the patient and his family to understand the recommendations of a physician.

Psychiatric Social Workers. --Nearly 2,300 social caseworkers are employed in mental hospitals or clinics and similar agencies for adults and children. They help the psychiatrist and other members of the psychiatric team plan for the patient and they interpret to the patient's family the meaning of mental illness. They also work with the patient after he returns home as well as with his family and community agencies.

One of the large employers of psychiatric social workers is the Veterans Administration. The veterans' hospitals and clinics, medical and psychiatric social workers are used interchangeably and both are known as clinical workers; in 1956, they numbered over 1,350.

Social Group Workers. --A social group workers works with organized groups of all ages to develop the individual and to foster socially desirable behavior. Leisure-time activities programs may include handicrafts, games, hikes, dancing, and the like. Specially planned groups may also be set up for the treatment of emotionally disturbed persons or for redirecting the behavior of delinquent youth, under the guidance of fully trained social group workers.

Many of the 9,000 workers in this field are employed by youth-serving social agencies and settlement houses. Others work for the American Red Cross, recreation departments, camps, religious

organizations, and such agencies as the Girl Scouts and the Camp Fire Girls. A small but increasing number are employed in hospitals, clinics, public social agencies, and in community programs for older workers.

Community Organization Workers.--An estimated 2,000 to 3,000 social workers are employed by community chests, community welfare councils, and other community agencies which have responsibilities for health and welfare planning. They have such duties as determining whether additional social organizations are needed or recommending changes in social organizations already in existence to avoid duplication of effort. Some community organization workers set up and conduct fund-raising campaigns and supervise the disbursement of collected funds as directed by the community council.

Other Social Workers.--Social workers perform a variety of other services. They work in all types of institutions, serving such groups as aged persons, delinquents, and adult offenders. About 3,000 are engaged in correctional work with those on probation or parole. Some 800 are teachers in schools of social work, almost half of them working part time. An estimated 500 specialists are in the social work research field in large cities and research centers, measuring the effectiveness of the social services rendered and seeking ways to improve methods of operation.

Some experienced social workers from the United States serve in other parts of the world. They may work as consultants in the rehabilitation of the disabled, as teachers in schools or seminars, or as administrators in setting up agencies and schools. They may be employees of the Federal Government, the United Nations or one of its affiliated groups, national professional associations, or private agencies such as the American Friends Service Committee, the American Red Cross, United Hebrew Immigrants Aid Society, the Young Women's Christian Association, and the Catholic Relief Service.

Training, Other Qualifications, and Advancement

The social work profession regards 2 years of graduate training, in 1 of the 51 approved schools of social work in the United States, as a desirable standard for professional social workers and is encouraging adherence to this standard by educators and employers of social workers. For admission to schools of social work, the applicant must have earned a bachelor's degree in an approved liberal arts college. In these schools, the student is helped to develop an ability to perform social work functions through classroom courses, field work, and research.

Basic training is the same for all types of workers. Undergraduate work should include such courses as economics, political science, psychology, sociology, statistical methods, and the biological sciences. English composition and public speaking courses help in preparing records, interviewing, and participating in meetings and conferences. Possibly 200 colleges and universities offer upperclassmen one or more undergraduate,

introductory courses in social work. About half of them offer 10 or more semester hours in an organized sequence and are members of the Undergraduate Division of the Council of Social Work Education. Although these courses are not required for entrance to graduate schools of social work, they give the interested student an excellent introduction to the work.

In addition to adequate training, a student in social work should have a warm interest in people and in social problems, a mature and unbiased outlook, and should be able to exercise good judgment. Students at all levels will find helpful such experiences as serving as a part-time volunteer, or as a summer employee, in camps, settlement houses, hospitals, and social agencies.

In relation to the number of students in this field, more financial aid for students with good academic records is available for graduate study in social work than in most professions. In 1955, approximately 70 percent of graduate social work students were receiving such aid. Scholarships are offered by graduate schools, private agencies, foundations, civic groups, and State Governments for those with good scholastic standing. Sometimes aid is offered contingent upon the student's pledge to return to work for the financing agency. Agencies often grant leave of absence and give scholarships to promising employees to encourage graduate study. In other instances, students are paid for part-time social work, thus providing funds for their professional education.

Such, however, is the shortage of qualified personnel in this profession that about three-fourths of the social workers in 1956 had less than 1 year of professional education. The proportion of those with graduate preparation ranges from 22 percent among public assistance workers to 60 percent among child-welfare workers. In some large cities, where higher salaries are paid, the proportion of all types of social workers with 2 years of professional education reaches 72 percent. Some assisting or aide positions, however, (notable in public assistance programs) may be entered without a bachelor's degree.

As workers gain experience and demonstrate ability, they have many opportunities for advancement to higher level positions, such as senior staff member, supervisor, executive, teacher, or research worker. However, advancement is limited for those lacking graduate professional education in an accredited school of social work.

Employment Outlook

Nearly 7,000 students were enrolled in graduate schools of social work in 1955; more than 1,500 students earned a master's degree in that year. Following a 20-percent decrease in enrollment between 1950 and 1954, there was a 30-percent increase in the number of students between 1954 and 1955. Even after this recovery the capacity of these schools was not being fully utilized. Not enough graduates are entering the field to replace those who are retiring, to fill vacancies, to enlarge existing services, and to man new services. There were numerous examples of specific shortages in the

estimated 10,000 vacancies in 1956 throughout the entire field of social work. Three thousand vacancies were reported in the public assistance and child-welfare fields in 1956 and more than 100 vacancies existed in the Veterans Administration. Several hundred social workers were also needed in each of the following fields: Corrections, mental health, rehabilitation, school work, and group work. Many of the 2,000 positions in the Red Cross, some overseas, were unfilled. Qualified instructors in the schools of social work were also in short supply. For the next several years, from 800 to 1,000 new workers will be needed each year in medical social work.

In view of the widespread gap between the number graduating from social work schools and the existing vacancies, and the rapid rise in population, authorities in this field expect the shortage to last for 10 years or longer and to become increasingly severe. This situation has caused agencies to employ persons without professional social work training for nonsupervisory positions and to place fully trained personnel in supervisory positions.

Men hold the majority of positions in the field of probation and parole, in group work, and in community organization. They are in great demand for administrative positions in all agencies, as medical and psychiatric social workers in the Veterans Administration and military hospitals, and in rehabilitation work. The proportion of men in social work is gradually increasing.

Earnings and Working Conditions

The salaries of social workers vary greatly from State to State. In 1956, graduates of professional schools without work experience were paid from $3,600 and up as beginning salaries. In some of the larger cities, experienced social workers with 2 or more years of graduate training were paid a median average salary of $4,345. Child-welfare workers and probation and parole officers were paid slightly less than this average salary and psychiatric social workers somewhat more.

The Federal Government through its civil-service system employs a few college graduates who have had undergraduate training in introductory social work courses at entrance salaries of $3,670. For those with 2 years of training in a professional school of social work, the entrance salary is $4,525; and for those with both 2 years of graduate training and 2 years of experience, the entrance salary is $5,440.

Administrators in large public and private agencies with heavy responsibilities may be paid $10,000 or more a year, with salaries reported up to $35,000. Positions in administration and in community organization are usually better paid than other positions, and men generally command higher salaries than women.

The workweek for social workers is usually from 35 to 40 hours. In a few agencies, 24-hour service is maintained so that shifts are rotated among the workers. Social work positions generally provide such benefits as retirement pensions, paid sick leave, and vacations.

Industries Providing Summer Employment

Irving Stern

Students planning to work during their summer vacations will be interested in knowing which industries increase their hiring at this time. As a guide to students, the Bureau of Labor Statistics has prepared a list of industries where employment usually expands in the late spring or early summer and declines in the early fall.

Because of the many different industries with employment peaks during the vacation months, a wide variety of job possibilities exists. There are opportunities for students in both manufacturing and nonmanufacturing industries. Industries such as agriculture and construction are major sources of summer employment, providing many openings for those interested in outdoor work. Many vacation jobs are also available in the retail trades and at summer resorts.

Industry	Summer increase in jobs 1/
Agriculture	700,000
Logging camps and sawmills	18,000
Trapping, forestry, and fisheries	6,000
Construction industries	287,000
Building construction	213,000
General contractors	110,000
Plumbing and heating	18,000
Painting and decorating	22,000
Electrical work	10,000
Other special-trade contractors	53,000
Nonbuilding construction	74,000
Highway and street	45,000
Other nonbuilding construction	29,000
Petroleum production and refining	14,000
Resort hotels, tourist homes, and camps	50,000
Miscellaneous amusement and recreation services	50,000
Canning and preserving	30,000
Tobacco stemming and redrying	30,000
Beverage manufacturing	15,000
Concrete, plaster, and structural clay products	6,000
Feed and grain mills	5,000
Miscellaneous food processing	6,000
Gasoline service stations	24,000
Eating and drinking places	20,000
Lumber and hardware supply stores	15,000
New and used car dealers	7,000
Dairy products stores	6,000
Railroads	20,000
Local utilities, e.g., gas and electric	13,000
Telephone	7,000
Banks and other financial institutions	14,000
Insurance companies and agencies	12,000
Real estate	6,000
Other industries	15,000

1/ Excludes jobs resulting from employee turnover.

Estimates of the number of summer jobs in the various industries were calculated by subtracting employment in the late spring from the peak employment during the summer. The figures presented, therefore, understate the number of workers who will be hired because there will be many additional job openings during the summer as a result of normal employee turnover. However, many jobs will not be open to students. Employers in industries where relatively high levels of employment continue into the fall naturally will not wish to hire temporary student employees exclusively. Furthermore, some jobs require a considerable amount of skill and experience. There are, however, many summer jobs which call for a minimum of training and experience.

The national estimates shown here indicate roughly the industries in which summer job opportunities are concentrated. Detailed information on opportunities in particular areas and experience or skill requirements are available from the local offices of State Employment Services.

"OUR MANPOWER FUTURE"

A NEW PUBLICATION BY THE
U. S. DEPARTMENT OF LABOR

A chartbook presentation (14 charts accompanied by text) depicting anticipated changes in our population and labor force to 1965

With some of the implications for . .

- **OUR EDUCATIONAL SYSTEM**
- **OUR INDUSTRIAL TRAINING PROGRAMS**
- **OUR PLANS FOR MANPOWER UTILIZATION**

For sale by the Superintendent of Documents or any of the BLS Regional Offices listed on the reverse side of this page at 30 cents per copy.

INDEX FOR VOLUME I, NOS. 1 and 2

	Volume and Page No.
Atomic energy	2/11
Auto mechanics	2/20
Chemists	1/25
Clerical occupations	1/5
Department stores	2/25
Electronics mfg.	1/12
Employment, recent trends	12/2
Geologists	2/32
High school education, value of	1/39
Creative manpower shortage	1/2
Nurses	1/30
Summer employment, students	2/42
School leavers	2/6
Social workers	2/37
Worker trait requirements	1/35

Note: 2/11 means No. 2, page 11.

ORDER FORM

Send order to the Superintendent of Documents, Washington 25, D. C., or to any of the following regional offices of the Bureau of Labor Statistics, U. S. Department of Labor:

630 Sansome St., San Francisco 11, Calif.
105 West Adams St., Chicago 3, Ill.
50 Seventh St., N. E., Atlanta 23, Ga.
18 Oliver St., Boston 10, Mass.
341 Ninth Ave., New York 1, N. Y.

Enclosed find $_____ for:

☐ _____ subscriptions to THE OCCUPATIONAL OUTLOOK at $1.00 per year domestic; $1.25 foreign.

☐ _____ copies of the _____ issue at 30 cents each.
(Month, year)

Name _____ Street _____

City _____ Zone _____ State _____

(Please make check or money order payable to Superintendent of Documents; do not send stamps.)

U. S. GOVERNMENT PRINTING OFFICE : 1957 O - 424203

UNITED STATES
GOVERNMENT PRINTING OFFICE
DIVISION OF PUBLIC DOCUMENTS
WASHINGTON 25, D. C.

OFFICIAL BUSINESS

PENALTY FOR PRIVATE USE TO AVO
PAYMENT OF POSTAGE, $300
(GPO)

USE TO AV
TAGE, $300